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United States  
Department of  
Agriculture

Soil  
Conservation  
Service

Spokane,  
Washington



# Water Supply Outlook for Washington

as of APRIL 1, 1984



## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

### COVER PHOTO: "Spring is on its way"

### PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P.O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th St., Boise, Idaho 83702
Montana	P.O. Box 98, Bozeman, Montana 59715
Nevada	P.O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4402 Federal Bldg., 125 South State St., Salt Lake City, Utah 84147
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P.O. Box 2440, Casper, Wyoming 82601

### PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 — for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 — for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 — and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



# **WATER SUPPLY OUTLOOK FOR WASHINGTON**

**and**

**FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS**

ISSUED BY

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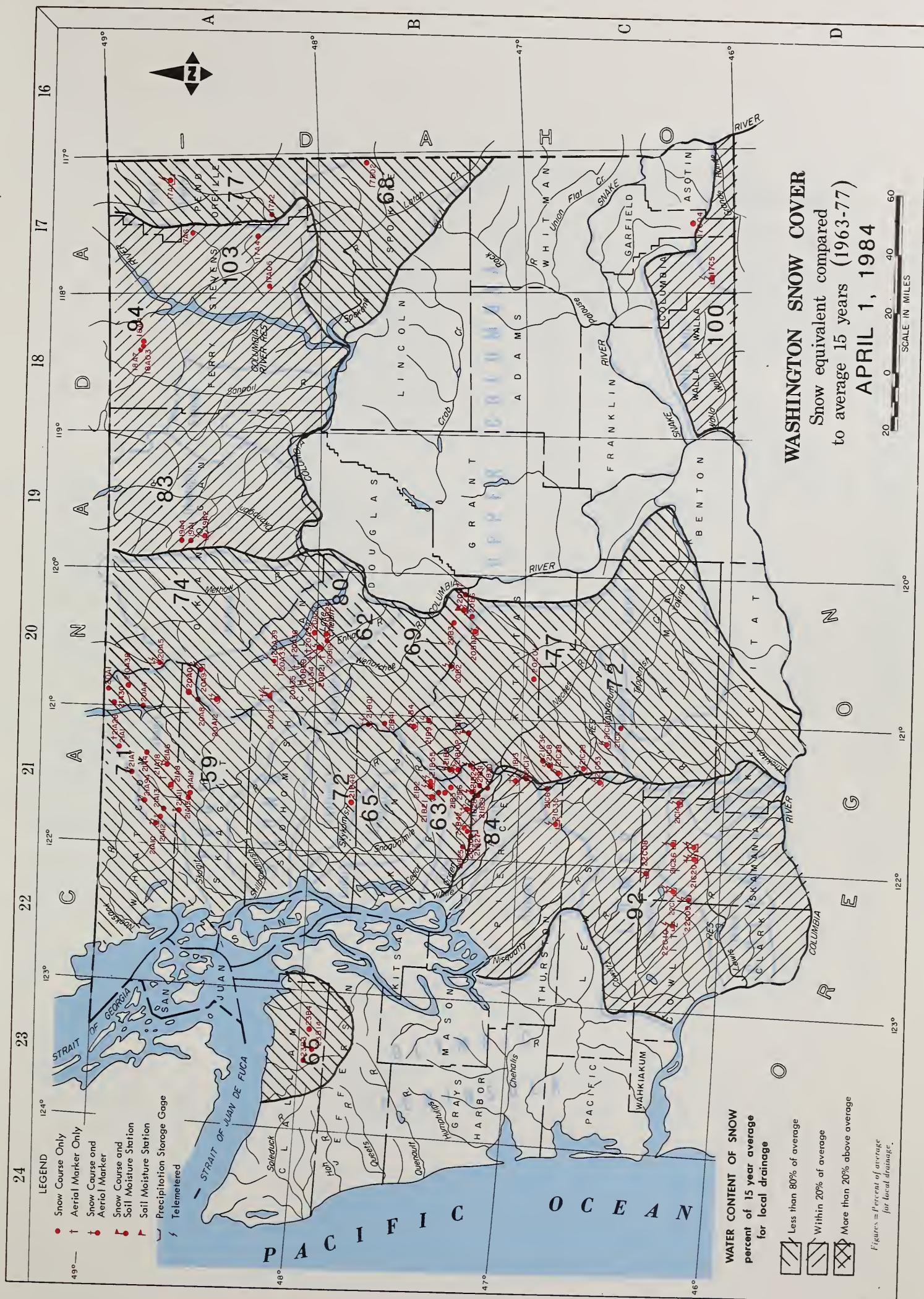
FORECASTS BY

**SOIL CONSERVATION SERVICE**  
WATER SUPPLY FORECASTING STAFF, WNTC  
PORTLAND, OREGON  
and  
**NATIONAL WEATHER SERVICE**  
RIVER FORECAST CENTER  
PORTLAND, OREGON

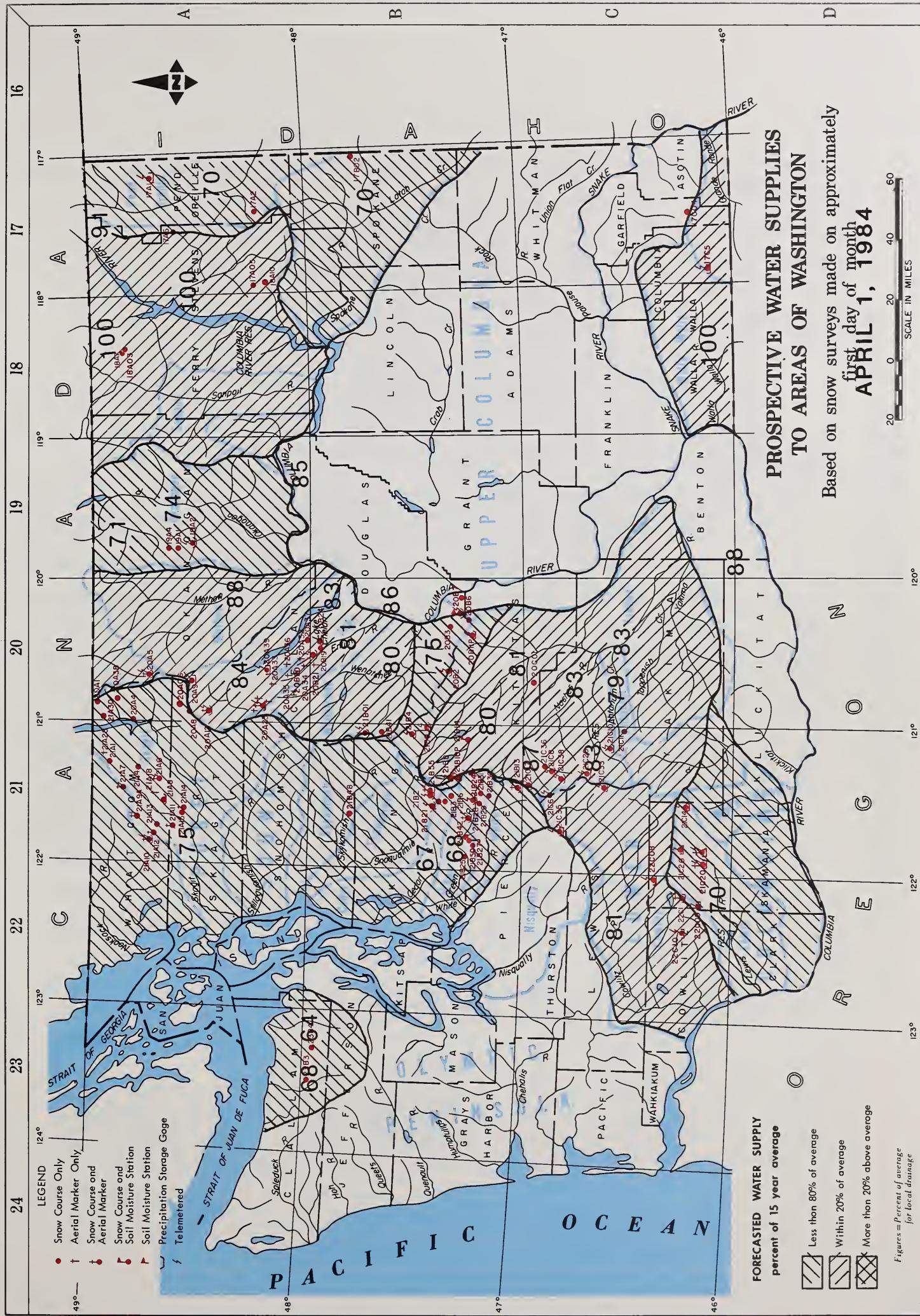
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INDEX to WASHINGTON SNOW COURSES,  
SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES



# INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE																	
Pend Oreille River						Spruce Springs						Touchet River					
Boyer Mountain	17A2	7	31N	43E	5250							Asatin Creek	17C4	9	8N	40E	5700
Bunchgrass Meadow	17A1SP	24	37N	44E	5000												
Kettle River	18A7	20	39N	35E	4600							Touchet Na. 2	17C5SP	6	7N	40E	5530
Spokane River	17B02	12	27N	45E	3333							Lewis River	22C09SP	26	8N	5E	3200
Colville River	17A6	19	36N	42E	3215							21C26SP	8	9N	7E	3800	
Stranger Mountain	17A5	26	31N	38E	4990							22C1SP	35	9N	5E	4400	
Togo	18A10	6	29N	38E	3370							21C20SP	16	8N	7E	3400	
LOWER COLUMBIA DRAINAGE																	
Multon Creek No. 1	Okanogan River	19A1	30	37N	24E	5700	Cayuse Pass	21C6	15	16N	10E	5300					
Multon Creek No. 2		19A4	19	37N	24E	6000	Digital Peak	21C33SP	11	13N	11E	5900					
Salmon Meadows		19A2SP	33	37N	24E	4500	Patah Hill	21C14SP	36	10N	10E	4500					
Harts Pass	Methow River	20A5SP	7	37N	18E	6500	Sheep Canyon	22C10SP	12	8N	4E	4050					
Lyman Lake	Chelan Lake Basin	20A23SP	18	31N	16E	5900	Strawberry	22C08SP	9	10N	6E	3280					
Park Creek Ridge		20A12SP	18	34N	16E	4400											
Rainy Pass		20A9SP	21	35N	17E	4780											
Mirror Lake		20A39	30	31N	18E	5600											
PUGET SOUND DRAINAGE																	
Brief	Entiat River	20B19	34	28N	19E	1600	Paradise Park (New)	21C35SP	13	15N	8E	5500					
Entiat Meadows		20A33a	28	31N	17E	4540											
Entiat River Trail		20A34a	2	33N	17E	3225											
Fox Camp		20A36a	17	30N	18E	6510											
Pope Ridge		20B20	22	29N	18E	3540											
Dope Ridge		20B24SP	22	29N	18E	3340											
Pugh Ridge		20A32a	34	30N	18E	6725											
Shady Pass		20A37	20	29N	19E	6200											
Snow Bushy		20A35a	21	30N	17E	3910											
Tommy Creek		20B21a	10	28N	18E	4900	Airstrip	21B24P	18	20N	11E	1800					
Berne-Mill Creek (New)	Wenatchee River	21B41SP	13	26N	14E	3240	Charley Creek	21B25	27	21N	8E	1200					
Blewett Pass No. 2		20B28SP	35	22N	13E	4270	Cauger Mountain	21B42SP	21	21N	9E	3200					
Stevens Pass		21B1SP	14	26N	13E	4070	Grass Mountain No. 2	21B27	14	20N	8E	2900					
Trough 2		20B25SP	10	20N	20E	5310	Grass Mountain No. 3	21B28	12	20N	8E	2100					
Beehive Springs	Squilchuck Creek	20B3	12	21N	19E	4400	Lester Creek	21B29	36	20N	10E	3100					
Stemilt Creek		20B6	30	21N	20E	5000	Lynn Lake	21B50	22	20N	8E	4000					
Upper Wheeler		20B7SP	30	21N	20E	4400	Sawmill Ridge	21B31	5	19N	11E	4700					
SNOQUALMIE RIVER																	
Ahtanum R. S.	Yakima River	21C11	24	12N	14E	3100	Twin Camp	21B10SP	25	21N	11E	3860					
Big Boulder Creek		21B9SP	35	23N	14E	3200	City Cabin	21B13	10	21N	10E	4100					
Bumping Lake		21C8P	23	16N	12E	3450	Mt. Gardner	21B12P	30	22N	10E	3300					
Bumping Lake New		21C36	13	16N	12E	3400	Alpine Meadow	21B48	31	27N	9E	3500					
Bumping Ridge		21C38SP	9	15N	12E	4600	Ollalie Meadows	21B2P	19	22N	11E	3625					
Fish Lake		21B4SP	28	24N	14E	3371	Beaver Creek Trail	21A4	35	39N	12E	3700					
Green Lake		21C10SP	3	12N	13E	6000	Brown Top	21A20P	20	22N	11E						
Grouse Camp		20B11SP	29	21N	19E	5385	Devils Park	20A4	34	38N	16E						
Lake Cle Elum		21B14M	15	20N	14E	2200	Freezeout Creek Trail	20A1	14	40N	14E						
Morse Lake		21C17SP	6	16N	11E	5400	Freezeout Meadows (New)	20A38	8	40N	16E						
Tunnel Avenue		21B8P	13	21N	11E	4500	Granite Creek	20A06	25	36N	16E						
White Pass (East Side)		21C28SP	2	13N	11E	4500	Meadows Cabins	20A8	29	36N	14E						
							Thunder Basin	21A30	19	40N	14E						
								20A07	10	35N	14E						

LEGEND

21A7 Snow Course Only  
 21A7a Aerial Marker Only  
 21A7c Snow Course And Aerial Marker  
 21A7m Soil Moisture Station  
 21A7p Snow Course And Precipitation Storage Gate  
 21A7SP Snow Pillow

## WATER SUPPLY OUTLOOK

State of Washington

April 1, 1984

The water supply forecast for most of Washington continued to deteriorate during March. Water users in the Olympic's and the Puget Sound areas can expect below normal runoff this spring and summer. The mountain snowpack ranges well below average to average. It is below average in the Spokane, Pend Oreille, Yakima, Wenatchee, Entiat and Methow Rivers. The Northwest Cascade slopes show well below average snowpack, with the Skagit having less than 59% of normal. Fall and winter precipitation was above normal in all sections of the state. Reservoir storage is very good for April 1. Streamflow continued above average throughout the state.

## SNOW COVER

Puget Sound Watersheds are well below normal. They range from a low of 59% on the Skagit, to 88% on the White River. Olympic Peninsula streams are also below average with the Elwha and the Dungeness having a snowpack at 65% of normal. The other areas of the state with much below average snowpack are the Spokane and Pend Oreille River drainages which have 68% and 77% of normal. The Entiat River snow courses showed the greatest decline having a 62% of average snow cover.

The Kettle River continues to be near average, as does the Cowlitz River. The Blue Mountain area of the state and the Collvile River have the best snowpack being near 100%. All other areas in the state are between 80 and 90% of average.

## PRECIPITATION

Precipitation during the November-March winter period has been above average over the entire state except the Southwest Cascade area. During this period the Puget Sound area received 57.56 inches, 104% of normal. The Yakima area received 28.14 inches, 102% of normal. Precipitation in the northeastern area was 125% of normal.

## RESERVOIR STORAGE

Stored water supplies are very good for April 1, with all sections of the state reporting above average storage. The Yakima irrigation reservoirs are storing 914,400 acre feet of water compared to the April 1 average of 741,500, or 123% of normal. The reservoirs in the Okanogan Irrigation District are at capacity. Lake Chelan is at 296,400 acre-feet, 101% of normal and Banks Reservoir is at 902,600 acre-feet.

## STREAMFLOW

River flows during March were above average for most of the state. Streams which had above average runoff for March included the Kettle River at 279%, the Okanogan River at 153%, the Chelan River at 136% and the Yakima River at 125%. The Pend Oreille River at 88% was the only major stream reporting below average streamflow.

Forecasts for spring and summer streamflow will be within 20% of average over most of the state. The Puget Sound rivers are still forecast below average, with the Skagit at 75%, the Cedar at 75% and the Dungeness at 71%. The forecasts for the streams in the Yakima Basin remains nearly constant with 80% at Parker and 81% at Cle Elum. Some forecasts for the rest of the state are, the Wenatchee at 80%, the Methow at 80% and the Okanogan at 79%. The Spokane Rivers forecasts have been reduced to 70%.

STREAMFLOW FORECASTS - APRIL 1984

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service.

Streamflow figures for 1982 and 1983 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet						20-Yr. Average 61-80
		% 20-Yr. Avg.	Fore- cast period	1983	1982	1981		
		<u>COLUMBIA BASIN</u>						
<u>COLUMBIA RIVER SYSTEM</u> /1/								
Columbia River at Birchbank	40600 32500 23700	91 91 91	Apr-Sept Apr-July Apr-June	43225 34569 24281	48575 38210 27454	48531 38501 27002	44605 35705 26027	
Columbia River at Grand Coulee	56800 47700 37400	85 85 85	Apr-Sept Apr-July Apr-June	46662 34933 26597	56425 43821 32610	70303 58525 44235	66841 56169 44036	
Columbia River bl. Rock Island Dam	62600 53000 41600	86 86 86	Apr-Sept Apr-July Apr-June	44560 58672 69844	79386 66629 50985	77308 64689 49348	72781 61601 48384	
Columbia River at The Dalles, OR	88300 74000 60000	88 86 86	Apr-Sept Apr-July Apr-June	103682 88273 70038	118503 101631 80122	96188 81125 63521	101000 86500 70100	
<u>PEND OREILLE RIVER SYSTEM</u>								
Pend Oreille River bl. Box Canyon	10800 9900 8560	70 70 70	Apr-Sept Apr-July Apr-June	12841 11482 9226	17721 16324 13306	13896 13179 11594	15425 14156 12227	
<u>KETTLE RIVER SYSTEM</u>								
Kettle River nr. Laurier	1830 1740 1580	100 100 100	Apr-Sept Apr-July Apr-June	2709 2534 2251	2330 2174 1747	2184 2013 1657	1829 1738 1581	
Colville River at Kettle Falls	134 123 114	100 100 100	Apr-Sept Apr-July Apr-June	182 161 144	160 146 132	125 111 95	134 123 114	

/1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet						20-Yr. Average 61-80
		% 20-Yr. Avg.	Fore- cast period	1983	1982	1981		
<u>SPOKANE RIVER SYSTEM</u>								
Spokane River /2/ at Post Falls, ID	2000 1920	70 70	Apr-Sept Apr-July	M M	M	2238 2145	2848 2754	
<u>OKANOGAN RIVER SYSTEM</u>								
Similkameen River nr. Nighthawk	1040 970 825	71 71 71	Apr-Sept Apr-July Apr-June	1490 1356 1155	1638 1491 1166	1241 1118 930	1462 1365 1161	
Okanogan River nr. Tonasket	1210 1110 930	74 74 74	Apr-Sept Apr-July Apr-June	2170 1891 1569	2046 1712 1306	1631 1416 1107	1644 1497 1262	
<u>METHOW RIVER SYSTEM</u>								
Methow River nr. Pateros	864 800 680	88 88 88	Apr-Sept Apr-July Apr-June	1354 1243 1094	1203 1120 918	786 724 602	980 908 773	
<u>CHELAN RIVER SYSTEM</u>								
Chelan River at Chelan /3/	1000 875 685	83 83 83	Apr-Sept Apr-July Apr-June	1261 1104 901	1376 1223 958	916 798 621	1203 1055 826	
Stehekin River at Stehekin	720 610 465	84 84 84	Apr-Sept Apr-July Apr-June	M 727 572	938 800 603	662 543 403	860 727 553	
Entiat River nr. Ardenvoir	190 173 140	81 81 81	Apr-Sept Apr-July Apr-June	292 263 221	282 258 206	186 168 137	235 213 172	
<u>WENATCHEE RIVER SYSTEM</u>								
Wenatchee River nr. Plain	1020 910 720	80 80 80	Apr-Sept Apr-July Apr-June	M M M	M M M	M M M	1270 1136 899	
Wenatchee River at Peshastin	1370 1235 990	80 80 80	Apr-Sept Apr-July Apr-June	1590 1432 1191	2013 1791 1429	1188 1075 869	1712 1545 1237	
Stemilt Basin nr. Wenatchee	104 *	75	May-Sept	M	M	M	**138	
Icicle Creek nr. Leavenworth	291 270 213	79 79 79	Apr-Sept Apr-July Apr-June	M M M	M M M	M M M	**370 **340 **270	

\* Thousands of Miners' Inches.

\*\* Average computed for 1963-1977.

/2/ Forecasts made by Jerry Beard, Soil Conservation Service, Boise, Idaho.  
Observed flow corrected for storage in Coeur d'Alene Lake.

/3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Seasonal Streamflow			in Thousands of Acre-Feet			
	Forecast Runoff 1984	%	Fore-	20-Yr.			20-Yr. Average 61-80
			20-Yr. Avg.	cast period	1983	1982	
<b>YAKIMA RIVER SYSTEM</b>							
Yakima River nr. Martin /4/	116 107 93	83 83 83	Apr-Sept Apr-July Apr-June	109 96 81	152 138 121	95 82 73	139 128 111
Yakima River at Cle Elum /5/	760 688 592	81 81 81	Apr-Sept Apr-July Apr-June	733 659 589	1100 1010 883	700 643 563	943 854 734
Yakima River nr. Parker /6/	1680 1520 1330	80 80 80	Apr-Sept Apr-July Apr-June	2221 1958 1722	2434 2193 1909	1194 1059 961	2096 1898 1667
Kachess River nr. Easton /7/	100 95 84	83 83 83	Apr-Sept Apr-July Apr-June	105 96 84	134 126 110	81 72 66	121 115 101
Cle Elum River nr. Roslyn /8/	400 365 305	86 86 86	Apr-Sept Apr-July Apr-June	421 381 324	516 468 392	313 282 244	463 422 353
Bumping River /9/ nr. Nile	124 112 93	87 87 87	Apr-Sept Apr-July Apr-June	137 128 109	161 147 123	78 70 63	142 129 107
American River nr. Nile	103 94 78	83 83 83	Apr-Sept Apr-July Apr-June	M M M	140 130 109	63 58 51	124 113 94
Tieton River /10/ at Tieton Dam	210 176 140	85 85 85	Apr-Sept Apr-July Apr-June	M M M	M M M	148 131 108	246 207 165
Naches River /11/ nr. Naches	700 635 540	81 81 81	Apr-Sept Apr-July Apr-June	966 881 770	998 945 775	419 380 339	867 784 667
Ahtanum Creek /12/ Nr. Tampico	37 34 29	79 79 79	Apr-Sept Apr-July Apr-June	M M M	M M M	M M M	47 43 37

/4/ Observed flow corrected for storage in Lake Keechelus.

/5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.

/6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Rosa, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

/7/ Observed flow corrected for storage in Lake Kachess.

/8/ Observed flow corrected for storage in Lake Cle Elum.

/9/ Observed flow corrected for storage in Bumping Lake.

/10/ Observed flow corrected for storage in Rimrock Lake.

/11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.

/12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1984	Seasonal Streamflow in Thousands of Acre-Feet						20-Yr. Average 61-80
		% 20-Yr. Avg.	Fore- cast period	1983	1982	1981		

#### LOWER COLUMBIA RIVER SYSTEM

Mill Creek at Walla Walla	17.5 17.3 17.2	100 100 100	Apr-Sept Apr-July Apr-June	13.48 13.39 13.36	24.62 24.48 21.63	28.5 28.5 27.3	**17.50 **17.33 **17.15	
Lewis River at Ariel /13/	875 760 673	70 70 70	Apr-Sept Apr-July Apr-June	1255 1046 821	1170 1030 927	1096 971 865	1249 1086 961	
Cowlitz River /14/ bl. Mayfield Dam	1650 1440 1220	81 81 81	Apr-Sept Apr-July Apr-June	1935 1754 1424	4936 1963 1722	M M M	2038 1778 1502	
Cowlitz River /14/ at Castle Rock	2000 1740 1485	75 75 75	Apr-Sept Apr-July Apr-June	2618 2195 1739	2655 2363 2080	2390 2125 1875	2673 2323 1980	

#### OLYMPIC PENINSULA

#### DUNGENESS RIVER SYSTEM

Dungeness River nr. Sequim	100 82 61	63 63 63	Apr-Sept Apr-July Apr-June	197 158 117	196 163 117	109 88 70	160 130 97	
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#### ELWHA RIVER SYSTEM

Elwha River nr. Port Angeles	375 308	68 68	Apr-Sept Apr-July	538 448	607 512	380 316	**553 **454	
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#### PUGET SOUND

#### SKAGIT RIVER SYSTEM

Skagit River /15/ at Newhalem	1770 1480 1115	75 75 75	Apr-Sept Apr-July Apr-June	1531 1061 698	1880 1439 1004	1773 1431 1064	**2356 **1972 **1485	
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#### GREEN RIVER SYSTEM

Green River bl. Howard Hanson Dam/16/	215 193 174	68 68 68	Apr-Sept Apr-July Apr-June	190 145 107	227 195 174	268 245 219	**316 **284 **256	
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#### CEDAR RIVER SYSTEM

Cedar River nr. Cedar Falls	62	67	Apr-Sept	66	80	74	**93	
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/13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.

/14/ Observed flow corrected for storage in Riffe Lake and Mayfield Reservoir.

/15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.

/16/ Observed flow corrected for storage in Howard Hanson Dam.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of washington stream basins presents the water content of the snow about April 1, 1984, as percent of the same date in 1983 and 1982 and average of record.

Tributary Basin	No. of Courses	1984 Snow Water Expressed		
		1983	1982	1961-80 Ave.
<u>UPPER COLUMBIA BASIN</u>				
Pend Oreille	12	82	87	77
Kettle	7	84	88	90
Colville	3	128	110	103
Spokane	6	86	83	68
Okanogan	23	78	86	83
Methow	2	53	60	74
Chelan	3	83	93	80
Entiat	9	54	60	62
Wenatchee	7	94	97	69
Yakima	17	96	100	77
Antanum	2	81	114	72
<u>LOWER COLUMBIA BASIN</u>				
Cowlitz	2	109	127	92
<u>PUGET SOUND</u>				
White	3	99	115	84
Green	10	120	128	63
Snoqualmie	1	93	65	65
Skykomish	2	109	92	72
Skagit	15	82	79	59
Baker	8	84	91	71
<u>OLYMPIC PENNINSULA</u>				
Morse	1	77	82	79
Elwha	1	71	67	60
Dungeness	1	49	53	55

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	1984	Measured 1983	(April) 1982	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	194.4	163.3	166.7	121.6
Columbia	Franklin D. Roosevelt Lake	5232.0	4455.5	1864.1	1094.0	1260.0
Columbia	Banks Lake	714.9	864.8	690.9	682.9	590.8
Okanogan	Conconully Reservoir	13.0	13.0	13.0	11.5	7.2
Okanogan	Conconully Lake	10.5	10.4	10.4	9.1	7.5
Chelan	Lake Chelan	676.1	296.4	295.1	319.9	294.2
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	145.7	122.3	142.5	108.8
Kachess	Kachess Lake	239.0	221.6	223.3	203.6	189.8
Cle Elum	Lake Cle Elum	436.9	363.2	364.4	148.5	292.1
Bumping	Bumping Lake	33.7	17.6	7.0	5.9	8.6
Tieton	Rimrock Lake	198.0	166.3	145.3	157.2	142.2
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	887.3	712.9	701.5	754.4
Skagit	Diablo Reservoir	90.6	83.8	88.0	86.1	85.7
Skagit	Gorge Reservoir	9.8	7.5	8.4	7.8	8.0

1/ Based on Active Storage  
 \* 15-yr. Average 1963-1977

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	Fall		Winter	
	Sept-Oct Observed	1983 2/ Departures	Nov. 1983	- Mar. 1984 2/ Observed Departures
Northeastern Wash	1.55	-1.55	11.78	+2.38
Southeastern Wash	2.54	-0.06	12.22	+1.79
East Slope Cascades	3.76	-0.99	28.14	+0.61
North Central Wash	1.45	-0.14	7.42	+0.88
Northwest Cascades	7.97	-5.24	57.50	+2.11
Southwest Cascades	5.36	-3.32	40.99	-0.65

Northeastern Washington	- Lower Spokane, Colville, Sandpil, and Lower Kettle Drainages
Southeastern Washington	- Touchet, Tucannon, and Palouse Drainages
East Slope Cascades	- Yakima, Wenatchee, and Chelan Drainages
North Central Washington	- Methow and Okanogan Drainages
Northwest Slope Cascades	- Puget Sound Drainages
Southwest Slope Cascades	- Lower Columbia Drainages

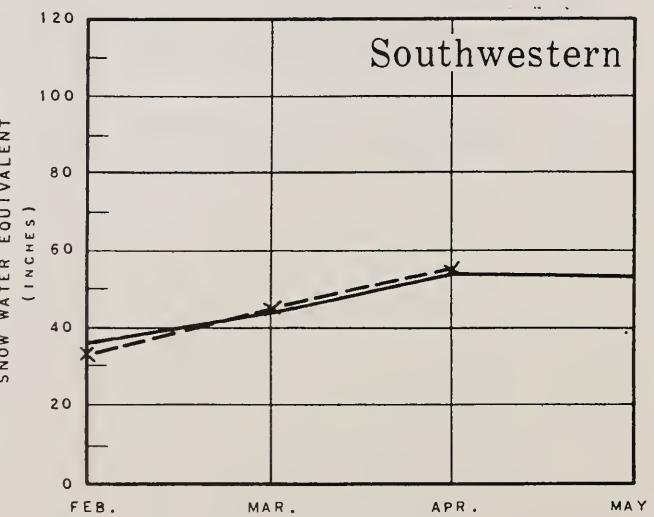
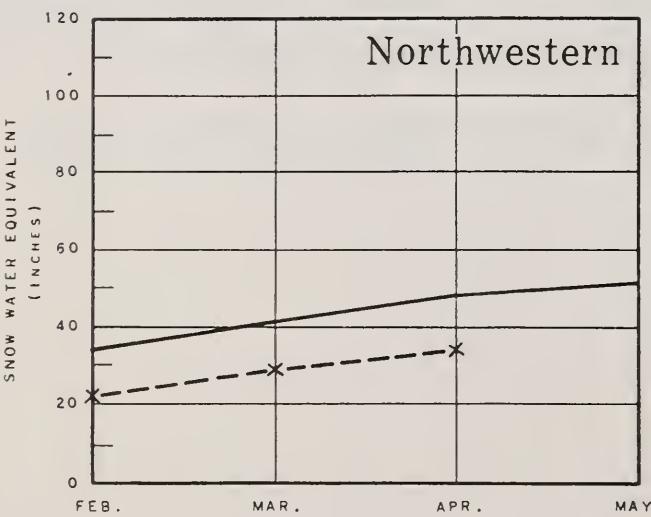
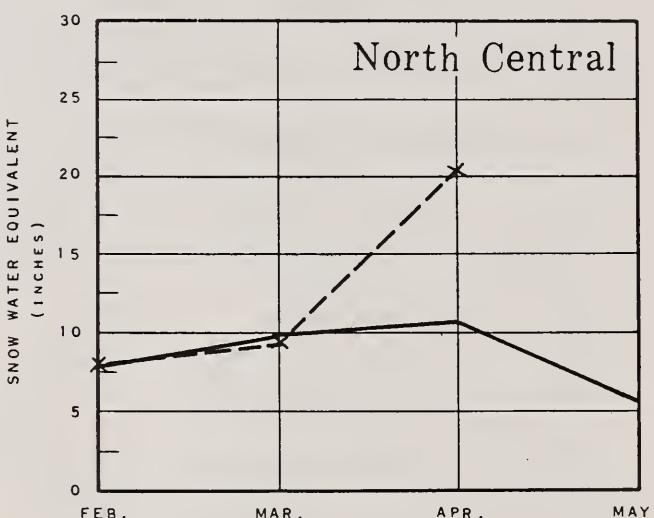
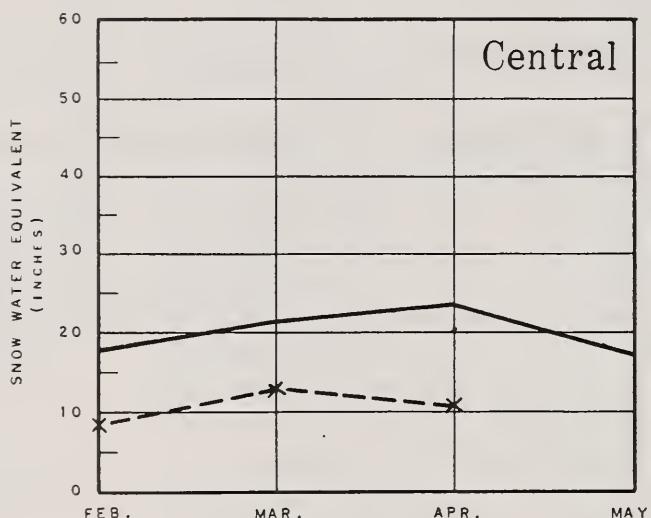
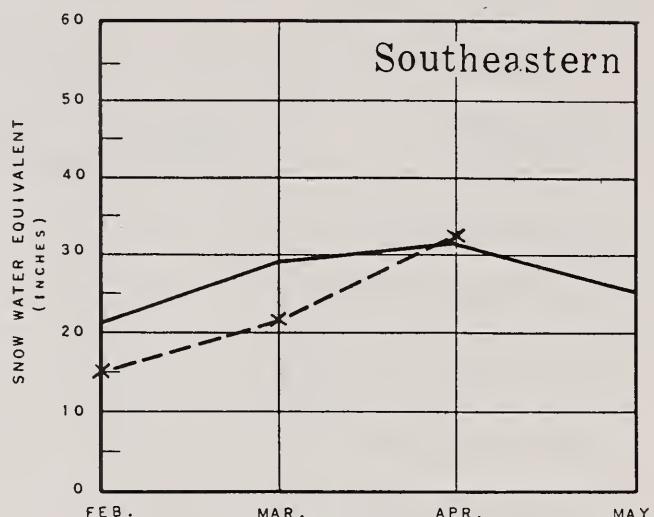
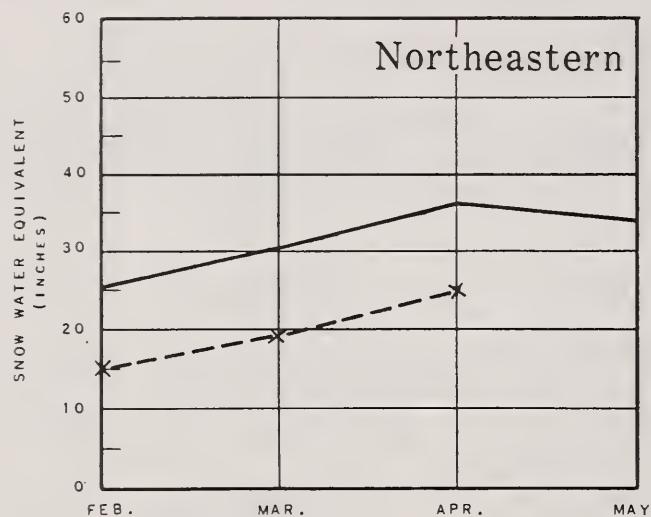
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service

2/ - Departure from 15-year (1958-1972) drainage division average

# WASHINGTON SNOW COVER

1984

## DRAINAGE AREAS



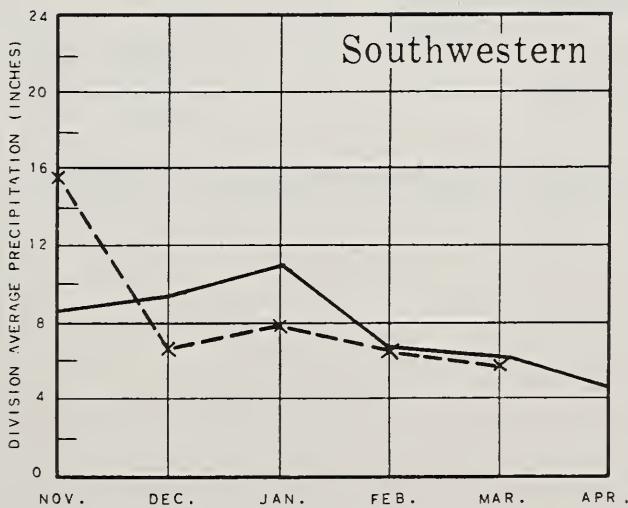
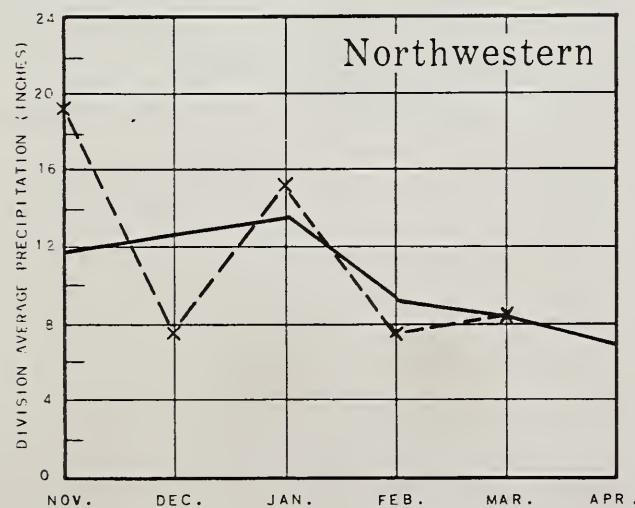
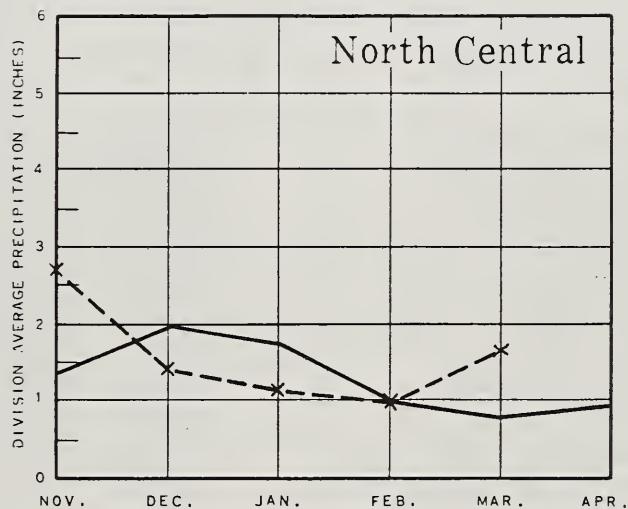
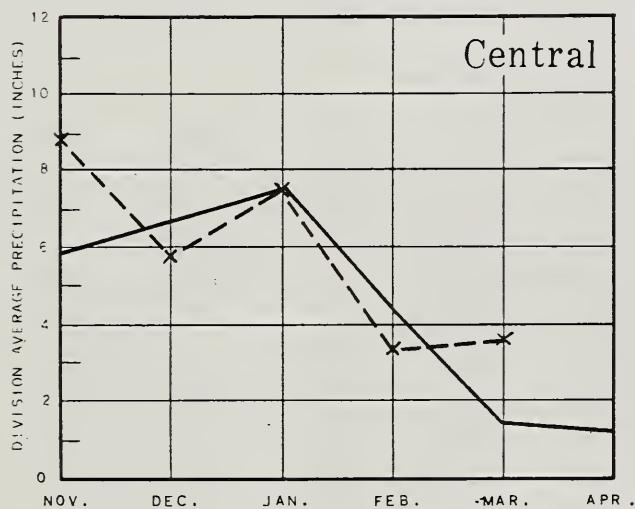
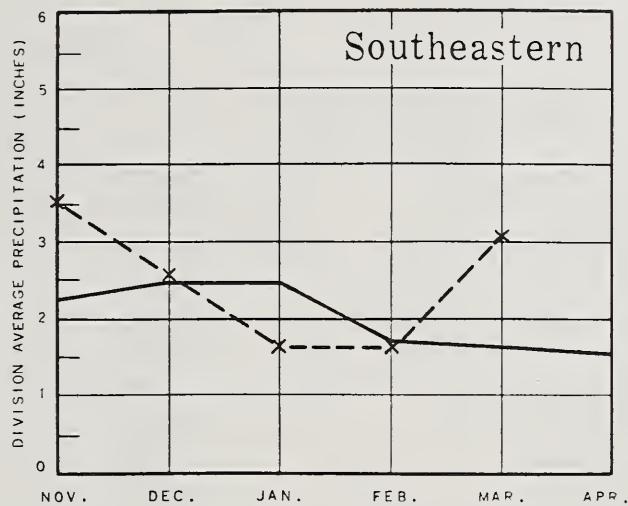
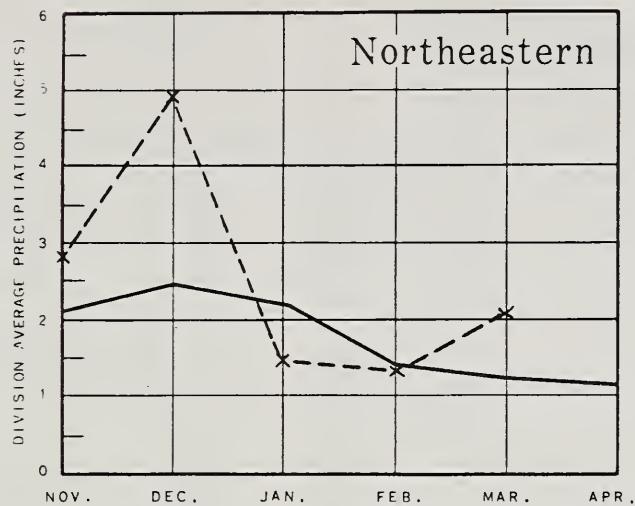
Average  
1984

Selected Snow Survey Courses by Soil Conservation Service

# WASHINGTON VALLEY PRECIPITATION

1984

## DRAINAGE AREAS



**Average**  
**1984**

Preliminary Analysis by National Weather Service

NOTE: Precipitation to end of month

## SNOW DATA TO APRIL 1, 1984 - APPENDIX 1

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year
NAME	Number	Elevation					#

UPPER COLUMBIA DRAINAGEPEND OREILLE RIVER

Benton Meadow	16A02	2344	3/30	0	0.0	0.0	4.9
Benton Spring	16A03	4900	3/30	47	15.3	22.0	19.8
Boyer Mtn	17A02	5250	4/02	68	25.2	29.8	27.0
Bunchgrass Meadow	17A01	5000	3/30	78	28.5	27.1	30.6
Chewelah	17A04	4925	3/31	50		17.1	14.7
Heart Lake Trail	14C10	4800	4/02	40	15.8	15.4	23.8
Hoodoo Basin	15C10	6000	4/02	101	39.3	46.2	53.6
Hoodoo Creek	15C01	5900	4/02	94	36.2	41.4	49.9
Lookout	15B02	5250	3/30	69	25.4	29.0	38.6
Nelson	2D04CA	3050	3/29	26	8.8	13.5	15.6
Schweitzer Bowl	16A06	4500	3/29	64	22.8	40.1	30.2
Schweitzer Ridge	16A05	6100	3/29	107	42.7	49.0	47.9

KETTLE RIVER

Barnes Creek	2B06CA	5300	3/27	61	18.9	18.9	20.9
Big White Mtn.	2E03CA	5500	3/30	63	20.4	24.5	20.6
Butte Creek	18A03	4070	3/31	33	12.0	11.3	8.6
Carmi	2E02CA	4100	3/31	20	5.7	6.5	6.6
Farron #1	2B02CA	4000	Not Measured			13.6	9.4
Farron #2	2.b02aC	4000	3/29	38	13.3	17.9	13.1
Goat Creek	18A04	3595	3/31	Trace	0.1		5.5
Moashee Pass	2E01CA	4500	3/29	40	12.6	12.9	14.9
Summit G.S.	18A05	2150	3/31	34	11.4	8.1	7.3
Trapping Creek Lower	2E05CA	3050	3/31	8	2.6	2.5	3.9
Trapping Creek Upper	2E04CA	4450	3/30	27	8.3	10.7	10.2

COLVILLE RIVER

Baird	17A06	3215	3/31	17	5.8	4.5	5.7
Chewelah	17A04	4925	3/31	50	17.1		14.7
Togo	18A10	3370	3/31	33	11.4		12.6

# Average based on 1961-1980 averages.

## SNOW DATA TO APRIL 1, 1984 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	Last Year

SPOKANE RIVER

Above Burke	15B08	4100	3/30	37	14.2	15.4	24.0
4th of July Summit	16B03	3100	3/28	14	5.0	0.0	7.9
Lookout	15B02	5250	3/30	69	25.4	29.0	36.3
Mosquito Ridge	16A04	5110	3/31	78	28.7	42.6	38.9
Sherwin	16C01	3200	3/30	26	9.2	3.6	13.2
Sunset	15B09A	5600	3/31	64	22.6	35.5	33.1

NEWMAN LAKE

Ragged Ridge	17B02	3333	3/01	0	0.0	0.0	New
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OKANOGAN RIVER

Aberdeen Lake	1F01CA	4300	3/30	16	4.6	7.6	6.2
Blackwall Peak	2G03CA	6250	4/02	65	24.9	34.5	34.9
Brenda Mine	2F18CA	4800	3/29	44	13.2	13.5	13.9
Brookmere	1C01CA	3200	3/31	12	4.2	7.8	9.5
Enderby	1F04CA	6250	3/29	107	40.0	43.7	38.9
Esperon Creek Lower	2F15CA	4400	Not Measured				7.8
Esperon Creek Middle	2F15CA	4700	" "				10.2
Esperon Creek Upper	2F13CA	5400	" "				10.6
Grayback Reservoir	2F08CA	5225	3/29	43	11.6	11.5	9.3
Hamilton Hill	2G06CA	4900	4/03	24	7.4	12.4	15.8
Harts Pass	20A05A	6500	3/29	97	33.1	42.2	46.4
Isintok Lake	2F11CA	6300	3/31	20	5.5	7.4	8.3
Lost Horse Mountain	2G04CA	7000	Not Measured				8.0
McCulloch	2F03CA	4200	3/29	17	5.0	6.1	6.7
Missoula Mtn.	2G05CA	5100	Not Measured				8.6
Mission Creek	2F05CA	6000	3/29	65	20.2	21.4	20.2
Monashee Pass	2E01CA	4500	3/29	39	12.6	12.9	14.9
Mount Kobau	2F12CA	5960	3/30	40	10.9	18.1	12.8

# Average based on 1961-1980 averages.

## SNOW DATA TO APRIL 1, 1984 - APPENDIX 3

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	Last Year
NAME	Number	Elevation					Average #

## OKANOGAN RIVER (CONT.)

Mutton Creek No. 1	19A01	5700	Not Measured			11.8	
Mutton Creek No. 2 SP	19A11	6000	Not Measured			New	
Nickel Plate	2G02CAN	6200	3/29	24	6.7	7.6	8.3
Oyama Lake	2F19CAN	4400	3/29	23	6.3	8.9	6.7
Postill Lake	2F07CAN	4500	3/29	28	8.3	10.1	9.1
Rusty Creek	19A03	4000	3/30	16	6.1	7.4	6.6
Salmon Meadows	19A02	4500	Not Measured		9.3	13.2	9.3
Silver Star Mountain	2F10CAN	6050	3/31	77	28.0	34.6	28.6
Summerland Reservoir	2F02CAN	4200	3/31	25	7.8	10.0	9.4
Sunday Summit	2G01CAN	4300	4/02	3	.4	1.4	5.2
Trout Creek	2F01CAN	4700	3/26	15	3.5	5.8	7.6
Vaseux Creek	2F20CAN	4600	3/29	27	6.9	8.9	6.7
White Rocks Mountain	2F09CAN	6000	3/30	67	23.9	30.2	23.5

## METHOW RIVER

Harts pass	20A05A	6500	3/29	97	33.1	42.2	46.4
Mutton Creek NO. 1	19A01	5700	Not Measured			16.1	11.8
Mutton Creek No. 2 SP	19A11	6000	Not Measured			New	
Rusty Creek	19A03	4000	3/30	16	6.1	7.4	6.6
Salmon Meadows	19A02	4500	Not Measured			13.2	9.3

## CHELAN LAKE BASIN

Cloudy Pass +	20A22	6500	Not Measured			35.2	
Lyman Lake	20A23	5900	3/27	137	54.6	61.3	61.8
Little Meadows +	20A24a	5275	Not Measured			37.6	37.6
Mirror Lake	30A39	5600	3/27	79	26.7	36.9	New
Park Creek Ridge	20A12	4600	3/27	86	34.8	43.7	45.5
Rainy Pass	20A09	4780	3/29	79	30.0	35.4	41.8

# Average based on 1961-1980 averages.

+ Aerial stadia observation.

## SNOW DATA TO APRIL 1, 1984 - APPENDIX 4

SNOW	THIS YEAR				PAST RECORD	
	DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)
	NAME	Number				Last Year

ENTIAT RIVER

Brief	20B19	1600	3/30	0	0.0	0.0	3.8
Entiat Meadows +	20A33	4540	3/30	75	26.2	59.2	49.3
Entiat River Trail +	20A34	3325	3/30	25	8.2	21.0	19.5
Fox Camp +	20A36	6510	3/30	100	40.0	81.6	59.0
Pope Ridge	20B20	3450	3/30	40	13.7	18.7	18.6
Pugh Ridge +	20A32	6725	3/30	63	23.3	48.4	38.5
Shady Pass	20A37	6200	3/30	66	24.4	33.3	31.4
Snow Brushy +	20A35	3910	3/30	74	27.4	41.2	38.9
Tommy Creek +	20B21	4900	3/30	43	14.2	30.4	25.9

WENATCHEE RIVER

Berne Mill Creek	21B23	3170	3/29	53	18.8	23.4	28.7
Berne Mill Creek SP	21B41	3240	3/29	35	13.6	20.1	
Blewett Pass No. 2	20B02	4270	3/27	32	11.8	15.9	16.4
Chiwaukum G. S.	20B16	1810	3/29	17	6.4	8.0	15.9
Lake Wenatchee	20B05	1970	Watershed Logged Discontinued				
Lyman Lake	20A23	5900	3/27	137	54.6	61.3	61.8
Merrett	20B18	2140	3/29	0	0.0	.0	
Stevens Pass	21B01	4070	3/29	97	40.3	42.8	53.0
Stevens Pass Sand Shed	21B45	3700	3/29	68	25.0	30.4	37.5

COLOCKUM CREEK

Trough #2(SP)	20B25	5310	3/29	11	3.3	25.5	11.9
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+ Aerial stadia observation

# Average based on 1961-1980 averages.

## SNOW DATA TO APRIL 1, 1984 - APPENDIX 5

## SNOW

DRAINAGE BASIN and or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year	Average #

SQUILCHUCK CREEK

Beehive Springs	20B03	4400	3/29	12	5.1	10.4	7.9
Scout-a-Vista	20B04	3400	Not Measured			7.2	8.2

STEMILT CREEK

Stimelt Slide	20B06	5000	3/29	25	9.7	21.4	13.6
Upper Wheeler(SP)	20B07	4400	3/29	39	11.3	16.8	8.6

YAKIMA RIVER

Ahtanum R.S.	21C11	3100	3/28	8	3.2	7.0	5.8
Big Boulder Creek	21B09	3200	3/28	36	12.6	12.2	18.4
Blewet Pass No. 2	20B02	4270	3/29	32	11.8	15.9	16.4
Bumping Lake Old	21C08	3450	3/30	25	9.0	15.2	15.7
Bumping Lake New	21C36	3400	3/30	34	12.7	20.0	20.6
Cayuse Pass	21C06	5300	3/29	178	78.6	99.2	88.1
Colockum Pass	20B09	5370	3/27	49	16.8	26.4	14.2
Corral Pass	21B13	6000	3/29	81	31.2	36.5	41.3
Fish Lake	21B04	3371	3/28	65	26.9	28.0	34.0
Green Lake	21C10	6000	3/27	66	26.0	44.9	34.6
Grouse Camp	20B11	5385	3/26	42	15.6	30.4	17.1
Lake Cle Elum	21B14	2200	3/27	0	0.0	0.0	5.5
Morse Lake	21C17	5400	3/27	114	46.7	67.8	57.5
Olallie Meadows	21B02	3625	3/30	71	31.7	20.7	48.4
Stampede Pass	21B10	3860	4/01	94	43.5	39.4	43.0
Tunnel Avenue	21B08	2450	3/27	29	11.0	9.4	23.7
White Pass E. Side	21C28	4500	3/29	59	24.2	27.0	24.9

# Average based on 1961-1980 Averages.

s Snow pillow reading.

## SNOW DATA TO APRIL 1, 1984 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year	Average #

AHTANUM CREEK

Ahtanum R. S.	21C11	3100	3/28	8	3.2	7.0	5.8
Green Lake	21C10	6000	3/27	66	26.0	44.9	34.6

LOWER COLUMBIA DRAINAGEMILL CREEK

High Ridge SP	18D19	4150	3/30	92	36.0s	28.9
Touchet # 2 SP	17C55	5530	3/30		32.5s	37.9

COWLITZ RIVER

Cayuse Pass	21C06	5300	3/29	178	78.6	99.2	88.1
White Pass E. Side	21C28	4500	3/29	59	24.4	27.5	23.1

PUGET SOUND DRAINAGEWHITE RIVER

Cayuse Pass	21C06	5300	3/29	178	78.6	99.2	88.1
Corral Pass	21B13	6000	3/29	81	31.2	36.5	41.3
Morse Lake	21C17	5400	3/27	114	46.7	67.8	57.5

GREEN RIVER

Airstrip	21B24	1800	4/04	0	0.0	1.6	
Charley Creek	21B25	1200	4/04	0	0.0	0.0	
Cougar Mountain	21B42	3200	4/04	31	12.2	2.7	20.6
Grass Mtn. No. 2	21B27	2900	4/04	19	5.3	0.0	21.4
Grass Mtn. No. 3	21B28	2100	4/04	0	0.0	0.0	3.9
Lester Creek	21B29	3100	4/04	42	13.2	10.4	25.9
Lynn Lake	21B50	4000	4/04	41	11.5	1.7	25.1
Sawmill Ridge	21B31	4700	4/04	67	20.8	24.6	39.5
Stampede Pass	21B10	3860	4/01	94	43.5	39.4	43.0
Twin Camp	21C30	4100	4/04	53	16.3	18.1	26.4

# Average based on 1961-1980 averages

s Snow Pillow

## SNOW DATA TO APRIL 1, 1984 - APPENDIX 7

SNOW	DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
	NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year

SNOQUALMIE RIVER

Olallie Meadows	21B02	3625	3/30	71	31.7	20.7	48.4
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SKYKOMISH RIVER

Stevens Pass	21B01	4070	3/29	97	40.3	42.8	53.0
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Stevens Pass Sand Shed	21B45	3700	3/29	68	25.0	30.4	37.5
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SKAGIT RIVER

Beaver Creek Trail	21A04	2200	3/29	3	1.2	6.3	13.5
Beaver Pass	21A01	3680	3/30	46	17.9	28.6	32.2
Brown Top Ridge	21A28	6000	3/29	124	46.8	53.2	65.7
Devils Park	20A04	5900	3/29	80	27.6	38.6	45.8
Freezeout Creek Trail	20A01	3500	3/29	13	4.8	8.7	12.6
Freezeout Meadows New	20A38	5000	3/29	52	17.9	37.7	35.7
Granite Creek	21A29	3500	3/30	26	9.2	15.8	19.2
Harts Pass	20A05A	6500	3/29	97	33.1	42.2	46.4
Klesilkwa	3D03ACA	3700	3/29	4	1.5	5.5	15.2
Lightning Lake	3D02CAN	4000	4/02	22	7.4	10.3	14.3
Lyman Lake	20A23	5900	3/27	137	54.6	61.3	61.8
Meadow Cabins	20A08	1900	3/29	0	0.0	0.0	5.8
New Hozomeen Lake	21A30	2800	3/29	3	1.5	6.0	13.2
Rainy Pass	20A09	4780	3/30	79	30.0	35.4	41.8
Thunder Basin	20A07	4200	3/29	33	10.8	18.5	23.5

# Average based on 1961-1980 averages

## SNOW DATA TO APRIL 1, 1984 - APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year	Average #

BAKER RIVER

Dock Butte +	20A11A	3800	3/29	126	53.0	63.0	70.4
Easy Pass +	21A07A	5200	3/29	140	60	83.0	90.9
Jasper Pass +	21A06A	5400	3/29	167	69	100.	89.9
Martin Lake	21A09A	3600	3/29	142	60.0	78.0	75.6
Mt. Blum +	21A18A	5800	3/29	138	58.0	72.0	63.0
Rocky Creek	21A12A	2100	3/29	28	12.0	6.0	29.8
Schreibers Meadow	21A10A	3400	3/29	86	37.0	45.0	64.6
S.F. Thunder Creek +	21A14A	2200	3/29	0	0.0	0.0	6.6
Watson Lake	21A08A	4500	3/29	116	48.0	65.0	69.1

OLYMPIC PENINSULA DRAINAGEDUNGENESS RIVER

Deer Park	23B04	5200	3/27	30	11.7	25.6	21.4
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MORSE CREEK

Cox Valley	23B14	4500	3/29	77	32.1	45.6	40.8
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ELWHA RIVER

Hurricane	23B03	4500	3/31	38	14.7	22.5	24.6
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+ Aerial stadia observation

# Average based on 1961-1980 average

## SNOW READINGS, APRIL 1, 1984 - APPENDIX J

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

PEND OREILLE RIVER

Bunchgrass Meadow	17A01	5000	3/15		23.1	36.6
	GT		3/30	83	29.2	27.12
			4/01		26.2	38.3

OKANOGAN & METHOW RIVERS

Harts Pass	20A05	6500	3/15		30.6	44.1
	GT		3/29	90	29.8	39.3
			4/01		34.7	48.6
Salmon Meadow	19A02	4500	3/16		17.6	27.9
			3/31		20.5	32.2

CHELAN LAKE BASIN

Lyman Lake	20A23	5900	3/15		55.7	58.0
	GT		3/27	137	(54.6)	61.3
			4/01		62.1	65.3
Mirror Lake	20A39	5600	3/15		25.9	
	GT		3/27	79	(26.7)	36.9
			3/28		28.5	39.5
Park Creek Ridge	20A12	4600	3/16		32.6	36.0
			3/27	86	(34.8)	41.2
			4/01		35.3	48.3
Rainy Pass	20A09	4780	3/20		30.4	42.2
	GT		3/29	79	(26.8)	33.0
			4/01		32.3	45.2

ENTIAT RIVER

Pope Ridge	20B20	3450	3/15		16.8	17.6
	GT		3/30	38	(13.0)	19.4
			4/01		15.7	16.9

WENATCHEE RIVER

Blewett Pass	20B02	4270	3/15		17.9	19.2
	GT		3/27		15.1	
			4/01		18.4	21.0
Lyman Lake	20A23	5900	3/15		55.7	58.0
	GT		3/27	137	54.6	65.3
			4/01		62.1	65.3
Stevens Pass	21B01	4070	3/15		33.2	23.0
	GT		3/29	86	(35.8)	
			4/01		37.1	23.9
Trough # 2	20B25	5300	3/15		2.8	20.0
	GT		3/29	11	(3.3)	25.5
			4/01		2.0	24.1

GT = Ground Truth measurement at SNOTEL site

## SNOWMELT READINGS, APRIL 1, 1984 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year	Average #

COLOCKUM CREEK

Trough # 2	20B25	5300	3/15		2.8	20.0
	GT		3/29	6	(3.3)	25.5
			4/01		2.0	24.1

STEMILT CREEK

Upper Wheeler	20B07	4400	3/15		13.3	16.8
	GT		3/29	38	(11.3)	16.8
			4/01		20.0	18.7

YAKIMA RIVER

Big Boulder Creek	21B09	3200	3/15		14.9	17.1
	GT		3/28	36	12.6	16.0
			4/01		14.2	16.6
Bumping Ridge	21C38	4600	3/15		26.4	
	GT		3/30	65	25.2	
			4/01		27.9	
Corral Pass	21B13	6000	3/15		6.5	31.1
			4/01		8.2	26.5
Fish Lake	21B04	3371	3/15		27.5	
	GT		3/28	65	26.9	28.0
			4/01		28.5	
Green Lake	21C10	6000	3/15		17.4	31.1
	GT					28.3
			4/01		18.3	34.2
Grouse Camp	20B11	5385	3/15		16.2	23.9
	GT		3/26	54	18.8	27.3
			4/01		17.6	27.3.
Morse Lake	21C17	5400	3/15		50.0	73.8
			4/01		55.8	80.0
White Pass E. Side	21C28	4500	3/15		22.0	20.5
	GT		3/29	59	24.4	23.0
			4/01		23.4	27.0

GT = Ground Truth measurement at SNOTEL site

## SNOWMELT READINGS, APRIL 1, 1984 - APPENDIX 3

SNOW	THIS YEAR				PAST RECORD		
	DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
	NAME	Number				Last Year	Average #

AHTANUM CREEK

Green Lake	21C10	6000	3/15		17.4	31.1
	GT		3/27	66	26.0	44.9
			4/01		18.3	34.2

TOUCHET RIVER

Touchet # 2	17C5	5530	3/15		28.2	32.3
	GT		3/01	69	22.0	
			4/01		32.5	37.9

LEWIS RIVER

June Lake	22C09	3200	3/15		25.5	
	GT		3/30	61	32.5	26.0
			4/01			26.0
Lone Pine Shelter	21C26	3800	3/15		32.5	38.9
	GT		3/30	70	28.3	44.9
			4/01		34.4	44.9
Plains of Abraham	22C01	4400	3/15		72.8	
			4/01		83.0	
Sheep Canyon	22C10	4050	3/15		33.8	
			4/01		37.7	
Spencer Meadow	21C20	3400	3/15		19.0	26.7
			4/01		20.7	30.2
Surprise Lake	21C13	4250	3/15		47.8	49.1
	GT		3/30	98	43.0	55.7
			4/01		55.7	55.7

COWLITZ RIVER

Pigtail Peak	21C33	5900	3/15		39.3	41.1
	GT		3/27	107	41.5	41.1
			4/01		44.7	45.8
Potato Hill	21C14	4500	3/15		20.0	
	GT		3/27	57	22.8	48.4
			4/01		20.8	
Sheep Canyon	22C10	4050	3/15		33.8	
			4/01		37.7	
Strawberry Landing	22C08	3280	3/15		35.5	
	GT			92	44.0	39.9
			4/01			32.8

GT = Ground Truth measurement at SNOTEL sites

## SNOTEL READINGS, APRIL 1, 1984 - APPENDIX 4

**SNOW**

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year	Average #

NISQUALLY RIVER

Paradise Park	21C35	5500	3/15	28.0
			4/01	24.5

WHITE RIVER

Corral Pass	21B13	6000	3/15	6.5	31.1
	GT		3/29	81	36.5
			4/01	8.2	26.5
Morse Lake	21C17	5400	3/15	50.8	73.8
	GT		3/27	114	67.8
			4/01	55.8	57.5

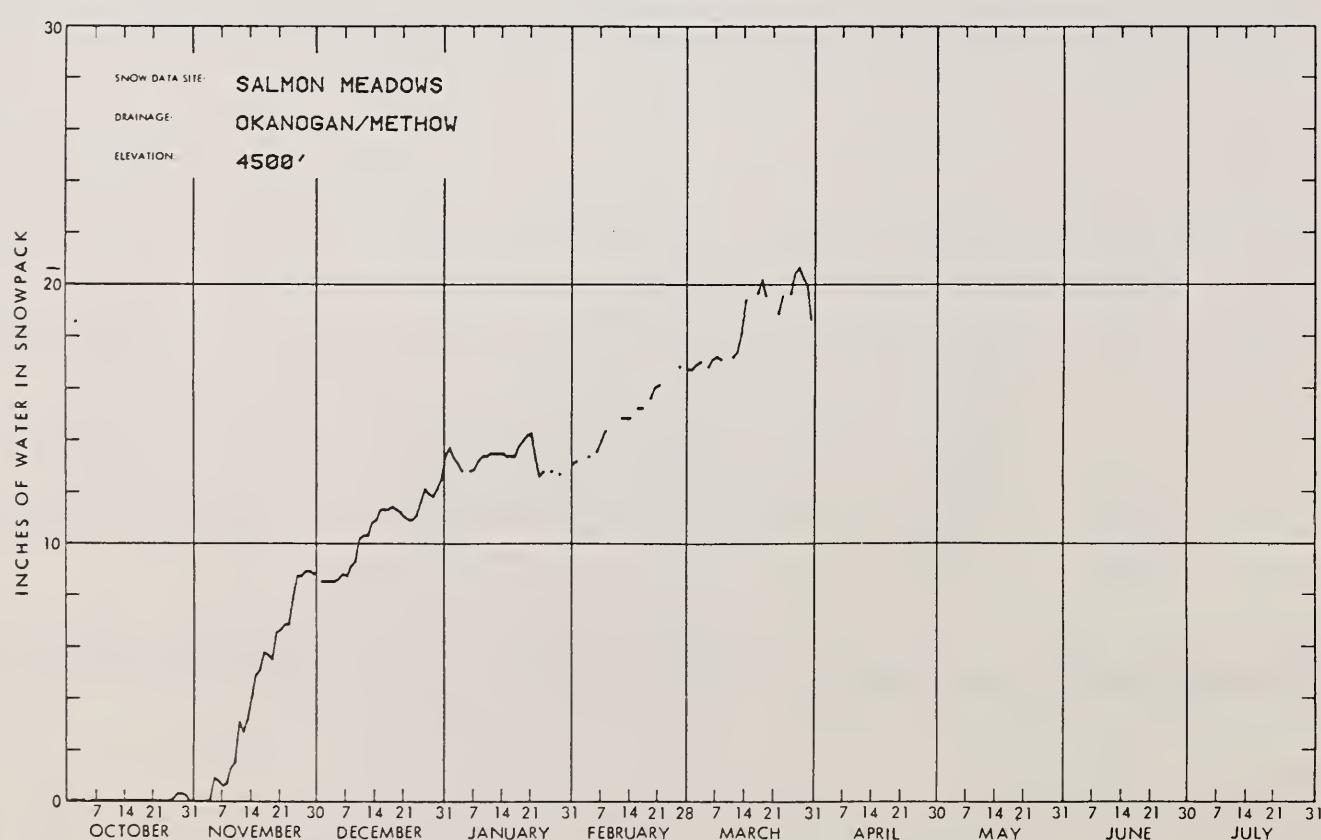
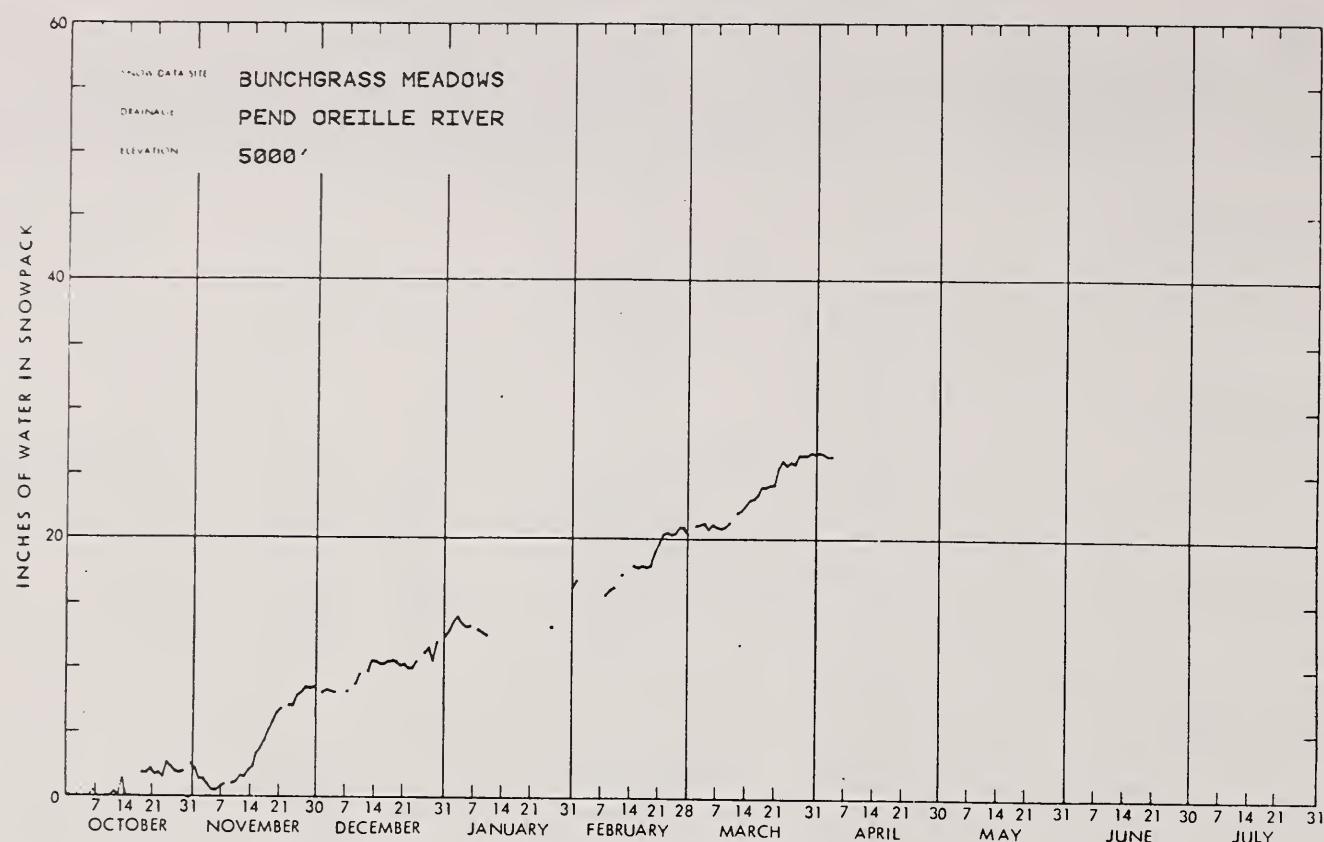
GREEN RIVER

Cougar Mountain	21B42	3200	3/15	13.9	2.7
	GT		3/29	31	2.7
			4/01	12.2	20.6
Stampede Pass	21B10	3960	3/15	14.1	.6
	GT		4/01	38.6	31.8
			4/01	36.0	33.0
			4/01	42.7	36.2

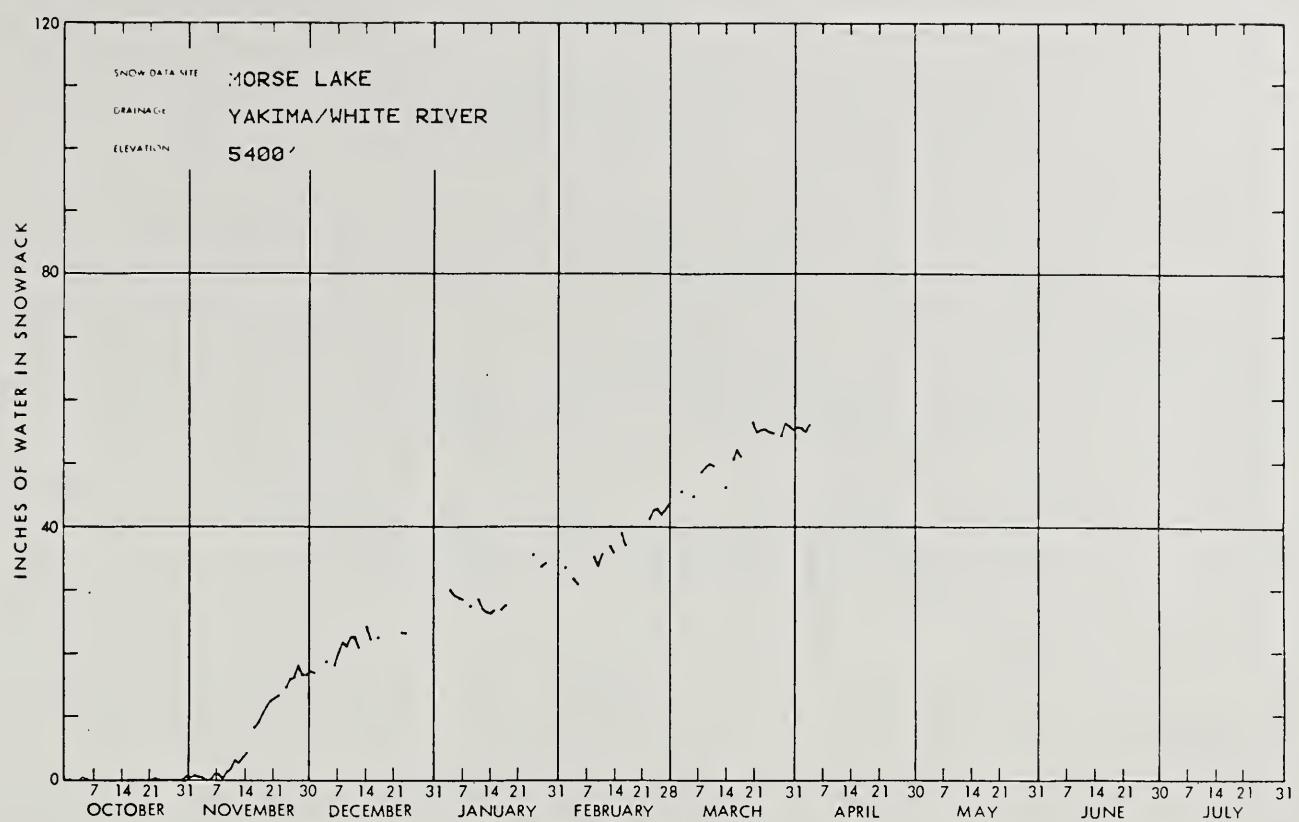
SNOQUALMIE RIVER

Olallie Meadows East	21B55	3960	3/15	45.2	43.9
			4/01	50.7	49.7

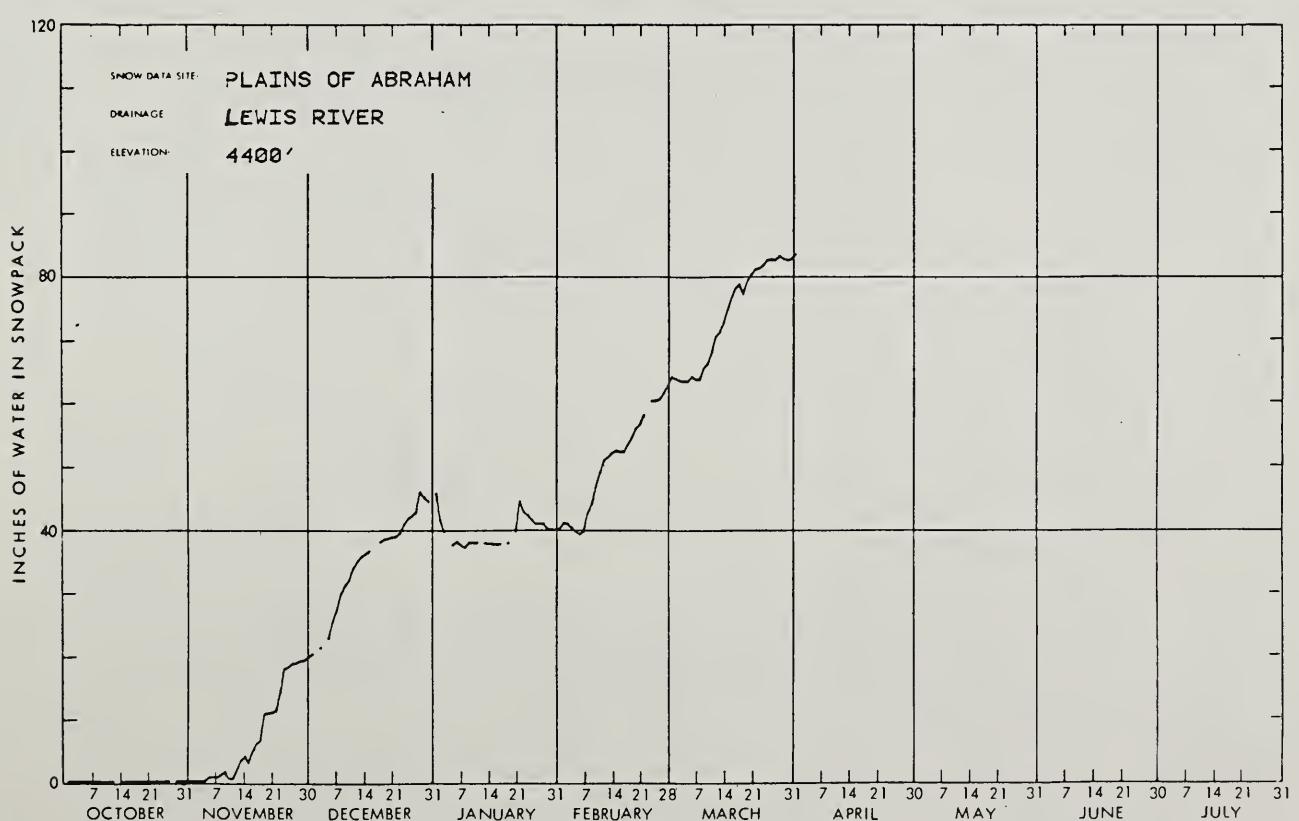
GT = Ground Truth measurements at SNOTEL sites



WSFB-X130



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# **Agencies Assisting with Snow Surveys**

## **GOVERNMENT AGENCIES**

### **Canada:**

Ministry of the Environment, Water  
Investigations Branch, Victoria, British Columbia

### **States:**

Washington State Department of Ecology  
Washington State Department of Natural Resources

### **Federal:**

Department of the Army  
Corps of Engineers  
U.S. Department of Agriculture  
Forest Service  
U.S. Department of Commerce  
NOAA, National Weather Service  
U.S. Department of the Interior  
Bonneville Power Administration  
Bureau of Reclamation  
Geological Survey  
National Park Service

## **PUBLIC AND PRIVATE UTILITIES**

Chelan County P.U.D.  
Pacific Power and Light Company  
Puget Sound Power and Light Company  
Washington Water Power Company

## **OTHER PUBLIC AGENCIES**

Okanogan Irrigation District  
Wenatchee Heights Irrigation District

## **MUNICIPALITIES**

City of Tacoma  
City of Seattle

*Other organizations and individuals furnish valuable information for  
snow survey reports. Their cooperation is gratefully acknowledged.*

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SOIL CONSERVATION SERVICE  
ROOM 360, U.S. COURT HOUSE  
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water supply for irrigation,  
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supply, hydro-electric power  
generation, navigation,  
mining and industry

—  
“The Conservation of Water begins  
with the Snow Survey”

